

Lab 4 - Number Expansion

CCNA Voice Lab 4

Number Expansion

Lab Objective:

The objective of this lab exercise is for you to learn and understand how implement number expansion in Cisco IOS H.323 gateways

Topic Description:

Number expansion is a digit manipulation technique that is used to add digits to an outgoing called number. It is used to expand a number in a legal E.164 address

Lab Difficulty:

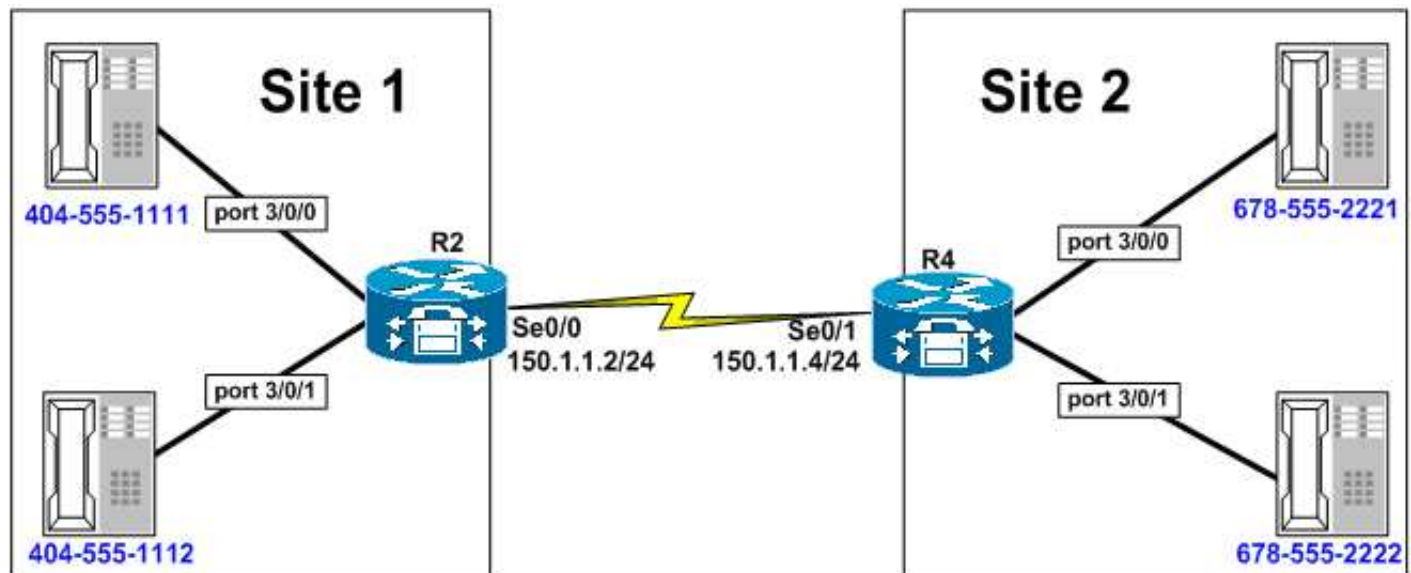
This lab has a difficulty rating of 6/10

Readiness Assessment:

When ready for your exam, you should be able to complete this lab in no more than 10 minutes

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab 4 Configuration Tasks

Task 1:

Configure the hostnames and IP addresses on R2 and R4 as illustrated in the diagram. Configure R4 to provide clocking to R2. Configure the clock rate on R4 as 800Kbps

Task 2:

Configure POTS dial peers on R2 for the extensions specified in the diagram. You are permitted to use any dial peer numbers that you want to use

Task 3:

Configure POTS dial peers on R4 for the extensions specified in the diagram. You are permitted to use

any dial peer numbers that you want to use

Task 4:

Configure VoIP dial peers on R2 for the extensions on R4. You are permitted to use any dial peer numbers that you want to use

Task 5:

Configure VoIP dial peers on R4 for the extensions on R2. You are permitted to use any dial peer numbers that you want to use

Task 6:

Management has decided that even though both sites are using 10-digit extensions, users should be able to call only the last 4 digits of the number to reach the other party. Configure number expansion on R2 and R4 to ensure this policy is adhered to

Task 7:

Verify your configuration using the appropriate Cisco IOS commands

Lab 4 Configuration and Verification

Task 1:

```
R2(config)#hostname R2
R2(config)#interface Serial0/0
R2(config-if)#description .Connected To R4 Serial 0/1.
R2(config-if)#ip address 150.1.1.2 255.255.255.0
```

```
R4(config)#hostname R4
R4(config)#interface Serial0/1
R4(config-if)#description .Connected To R2 Serial 0/0
R4(config-if)#ip address 150.1.1.4 255.255.255.0
R4(config-if)#clock rate 800000
```

Verify connectivity by performing a simple ping between the two routers

```
R2#ping 150.1.1.4
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.4, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
```

```
R4#ping 150.1.1.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/8 ms
```

Task 2:

```
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#destination-pattern 4045551111
R2(config-dial-peer)#port 3/0/0
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 2 pots
R2(config-dial-peer)#destination-pattern 4045551112
R2(config-dial-peer)#port 3/0/1
R2(config-dial-peer)#exit
```

Task 3:

```
R4(config)#dial-peer voice 1 pots
```

```
R4(config-dial-peer)#destination-pattern 6785552221
R4(config-dial-peer)#port 3/0/0
R4(config-dial-peer)#exit
R4(config)#dial-peer voice 2 pots
R4(config-dial-peer)#destination-pattern 6785552222
R4(config-dial-peer)#port 3/0/1
R4(config-dial-peer)#exit
```

Task 4:

```
R2(config)#dial-peer voice 3 voip
R2(config-dial-peer)#destination-pattern 678555222.
R2(config-dial-peer)#session target ipv4:150.1.1.4
R2(config-dial-peer)#exit
```

Task 5:

```
R4(config)#dial-peer voice 3 voip
R4(config-dial-peer)#destination-pattern 404555111.
R4(config-dial-peer)#session target ipv4:150.1.1.2
R4(config-dial-peer)#exit
```

Task 6:

```
R2(config)#num-exp 222. 678555222.
```

```
R4(config)#num-exp 111. 404555111.
```

Task 7:

The first task is to use the **show num-exp** command to verify configuration:

```
R2#show num-exp 222.
Dest Digit Pattern = '222.'    Translation =
                             '678555222.'
```

```
R4#show num-exp 111.
Dest Digit Pattern = '111.'    Translation =
                             '404555111.'
```

To verify number expansion, use **csim start [number]** while debugging the voice CCAP1:

Final Relevant Configuration R2:

```
R2#show running-config
```

Building configuration...

Current configuration : 1502 bytes

```
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
!
!
interface Serial0/0
 description .Connected To R4 Serial 0/1.
 ip address 150.1.1.2 255.255.255.0
!
!
!
voice-port 3/0/0
!
```

```

voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer voice 1 pots
destination-pattern 4045551111
port 3/0/0
!
dial-peer voice 2 pots
destination-pattern 4045551112
port 3/0/1
!
dial-peer voice 3 voip
destination-pattern 678555222.
session target ipv4:150.1.1.4
!
num-exp 222. 678555222.

```

Final Relevant Configuration R4:

R4#show running-config

Building configuration...

Current configuration : 1525 bytes

```

!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R4
!
!
!
!
interface Serial0/1
description .Connected To R2 Serial 0/0
ip address 150.1.1.4 255.255.255.0
clock rate 800000
!
!
!
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer voice 1 pots
destination-pattern 6785552221
port 3/0/0
!
dial-peer voice 2 pots
destination-pattern 6785552222
port 3/0/1

```

```
port 5061  
!  
dial-peer voice 3 voip  
destination-pattern 404555111.  
session target ipv4:150.1.1.2  
!  
num-exp 111. 404555111.
```



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